ELMO

Imaging

Digital Film Viewer

ST200-DFV

INSTRUCTION MANUAL

Please read this instruction manual carefully before using this product and keep it for future reference.

S-T IMAGING, INC.

a division of Digital Check Corp.

ST 200 series

S-T Digital Film Viewers and Scanners

Low Cost, Archival Quality, Microfilm Viewing and Scanning

About using this Elmo ST200-DFV Digital Film Viewer with an ST Imaging Microfilm Scanner System

The ST200-DFV is one of a family of ELMO Video Presenters that are powerful and versatile digital image viewing system devices. In various configurations ELMO systems can be used with, or independently from, other PC systems and peripherals. This manual includes important safety and technical information on the ST200-DFV Digital Film Viewer system.

This manual is a comprehensive review of all of the general operational and technical aspects of the unit as an independent image viewing device. Some of the capabilities, operations and uses described in these pages refer to applications other than those that would be put to use in combination with the ST200 Digital Viewing and Scanning solutions that include a Digital Film Scanner.

Some of the installation and operational advice included here suggest optional PC connections and capabilities that will not be needed when this system is used in conjunction with an ST Imaging Digital Film Scanner and a Windows compatible PC.

For additional information, including directions on the specific installation directions showing how to set up for use with the optional ST Imaging Digital Film Scanners, please consult the separate manual that comes with the scanning system.

For additional information visit our website at www.stimaging.com

IMPORTANT SAFEGUARDS

■ Read Instructions – All the safety and operating instructions should be read before the appliance is operated.

■ Retain Instructions – The safety and operating instructions should be retained for future reference.

■ Heed Warnings – All warnings on the product and in the operating instructions should be adhered to.

■ Follow Instructions – All operating and use instructions should be followed.

■ Cleaning – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

■ Attachments – Do not use attachments not recommended by the product manufacturer as they may cause hazards.

■ Water and Moisture – Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.

■ Placement – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

■ Ventilation – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

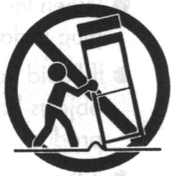
■ Power Sources – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home consult your appliance dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

■ Grounding or Polarization – This product may be equipped with either a polarized 2-wire AC line plug (a plug having one blade wider than the other) or a 3-wire grounding type plug, a plug having a third (grounding) pin. The 2-wire polarized plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. The 3-wire grounding type plug will fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

■ Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

■ Lightning – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

■ Overloading – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.



■ A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

■ Object and Liquid Entry – Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

■ Servicing – Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

WARNING : Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm. ***Wash hands after handling.***

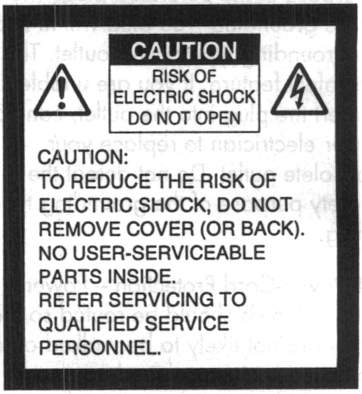
■ Damage Requiring Service – Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance - this indicates a need for service.

■ Replacement Parts – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

■ Safety Check – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

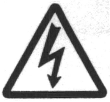
■ Heat – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.



CAUTION

RISK OF
ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



SA 1965

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons. This marking is located at the bottom of product.

SA 1966

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

THIS IS A CLASS A PRODUCT.
IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE IN WHICH CASE THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

INFORMATION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

USER-INSTALLER CAUTION:

Your authority to operate this FCC verified equipment could be voided if you make changes or modifications not expressly approved by the party responsible for compliance to Part 15 of the FCC rules.

BEFORE YOU USE

- Use this product under the rated electrical conditions.
- Do not leave this product under direct sunlight or by heaters, or this product may be discolored, deformed, or damaged.
- Do not place this product in any humid, dusty, windy or vibrating location. Use this product in the following environmental conditions:
  Temperature: 5°C~40°C (41°F~104°F)
  Humidity: 30%~85% (No condensation)
- Use a soft, dry cloth for cleaning. Do not use any volatile solvent, such as thinner or benzine.
- Do not directly point the camera lens into the sun, or the camera may be damaged.
- Caring for the batteries:
  - If this product is not used for a long time, take out the batteries from the wireless remote control.
  - Do not use rechargeable Ni-Cd batteries.
  - Do not use new and old batteries, or batteries of different types together.
  - Do not try to recharge or short-circuit the batteries.

CONTENTS

1. PART NAMES AND FUNCTIONS

Appearance 8
Front Operation Panel 9
Rear Panel 10
Wireless Remote Control 11

2. WIRELESS REMOTE CONTROL

Receivable Range 13
Preparation 13

3. MOUSE

Mouse Operation 14

4. SETTING UP AND CONNECTION

Setting Up 15
Connection to Monitor and Projector 15
  Connection to the analog RGB-out terminal 16
  Connection to the composite video-out terminal 16
  Connection to the S video-out terminal 16
Analog RGB Signal 16
  Signal allocation 16
  Pin assignment 16

5. STORING

Storing 17

6. OPERATION PROCEDURES

Simple Steps for Presenting Printed Material 18
Steps for Showing Transparent Material 19
Taking pictures of object out of the stage 19

7. VARIOUS FUNCTIONS AND OPERATION

Lighting 20
Zoom 21
Monitor Output selection 22
  External input image signal which can be output from video-out terminal 23
Electronic Enlargement 24
Color / B&W Selection 24
Posi / Nega Conversion 25
Image Rotation 25
Pause 26
Contrast 26
White Balance 27
Iris 28
  Brightness control OFF 28
  Brightness control ON 28
Focus 29
  Auto Focus 29
  Powered Manual Focus 30

1. PART NAMES AND FUNCTIONS .....▶ 1
2. WIRELESS REMOTE CONTROL ....▶ 2
3. MOUSE ....▶ 3
4. SETTING UP AND CONNECTION ....▶ 4
5. STORING ....▶ 5
6. OPERATION PROCEDURES ....▶ 6
7. VARIOUS FUNCTION AND OPERATIONS ....▶ 7
8. OSD ....▶ 8
9. RS-232C SPECIFICATIONS .....▶ 9
10. TROUBLESHOOTING HINTS ....▶ 10
11. SPECIFICATIONS ...▶ 11

1 ◂.... 1. PART NAMES AND FUNCTIONS
2 ◂.... 2. WIRELESS REMOTE CONTROL
3 ◂.... 3. MOUSE
4 ◂.... 4. SETTING UP AND CONNECTION
5 ◂.... 5. STORING
6 ◂.... 6. OPERATION PROCEDURES
7 ◂.... 7. VARIOUS FUNCTION AND OPERATIONS
8 ◂.... 8. OSD
9 ◂.... 9. RS-232C SPECIFICATIONS
10 ◂.... 10. TROUBLESHOOTING HINTS
11 ◂.... 11. SPECIFICATIONS

CONTENTS

Preset Operation 30
Image Memory 31
Mirror Image 31
Installation of LCD Monitor 31
Connecting to the LCD Monitor 32
"Utility Software CD-ROM" 32

8. OSD (On-Screen Display)

Main Menu 33

9. RS-232C SPECIFICATIONS

Setting Up 36
Cable Connection 36
Data Format Specifications 37
  Transmission Command (PC → Visual Presenter) 37
  Response data format (Visual Presenter → PC) 37
Transmission Specifications 38
UART Communication Format 39
Connection 40

10. TROUBLESHOOTING HINTS

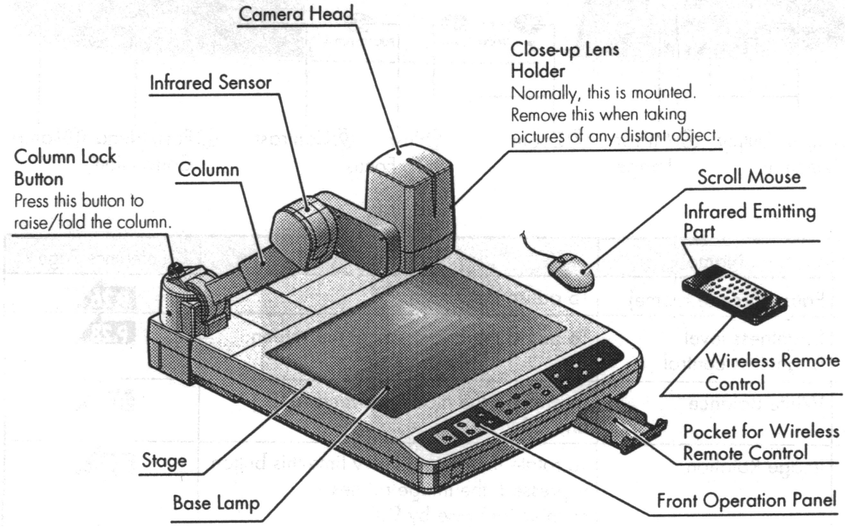
Symptoms and Confirmation 41
Replacement of Fluorescent Lamp 42

11. SPECIFICATIONS

General 43
Main Camera 44
Lighting 44
Supplied Accessories 45
Options 45

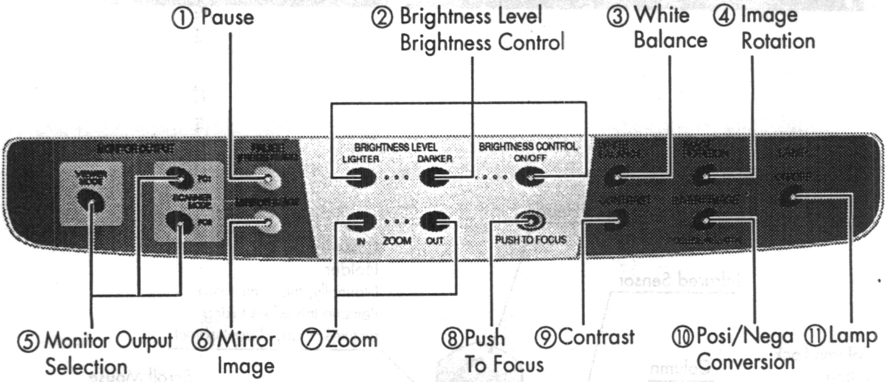
1 PART NAMES AND FUNCTIONS

Appearance



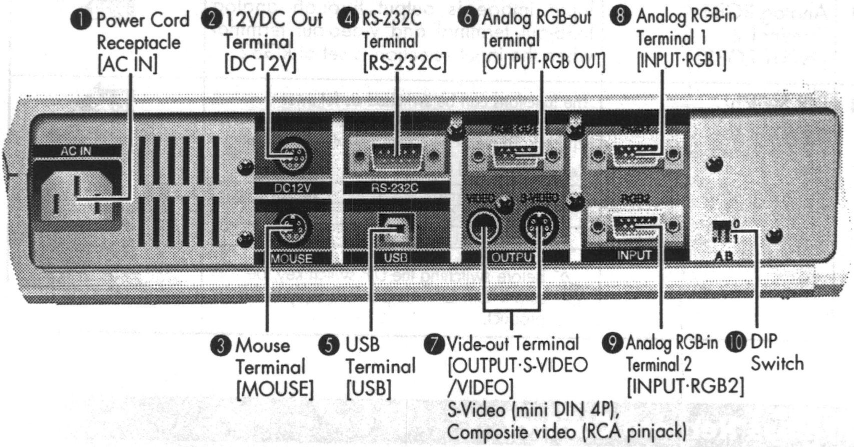
Camera Head
Infrared Sensor
Close-up Lens Holder
Normally, this is mounted. Remove this when taking pictures of any distant object.
Column Lock Button
Press this button to raise/fold the column.
Column
Scroll Mouse
Infrared Emitting Part
Wireless Remote Control
Pocket for Wireless Remote Control
Stage
Base Lamp
Front Operation Panel

Front Operation Panel


① Pause
② Brightness Level Brightness Control
③ White Balance
④ Image Rotation
BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS
⑤ Monitor Output Selection
⑥ Mirror Image
⑦ Zoom
⑧ Push To Focus
⑨ Contrast
⑩ Posi/Nega Conversion
⑪ Lamp

	Name	Function	Reference Page
①	Pause (Freeze Frame)	To pause the image.	P.26
②	Brightness level Brightness control	To adjust the brightness of the screen.	P.28
③	White Balance	To change the mode between AUTO and ONE-PUSH.	P.27
④	Image Rotation	To rotate the image. Every time this button is pressed, the image rotates counterclockwise by 90°.	P.25
⑤	Monitor Output Selection	To change the output line.	P.22
⑥	Mirror Image	To convert the image from mirrored to normal.	P.31
⑦	Zoom	To zoom the object.	P.21
⑧	Push To Focus	To focus automatically.	P.29
⑨	Contrast	To make documents, etc. visible clearly.	P.26
⑩	Posi/Nega Conversion	To switch Posi/Nega.	P.25
⑪	Lamp	To switch the lighting.	P.20

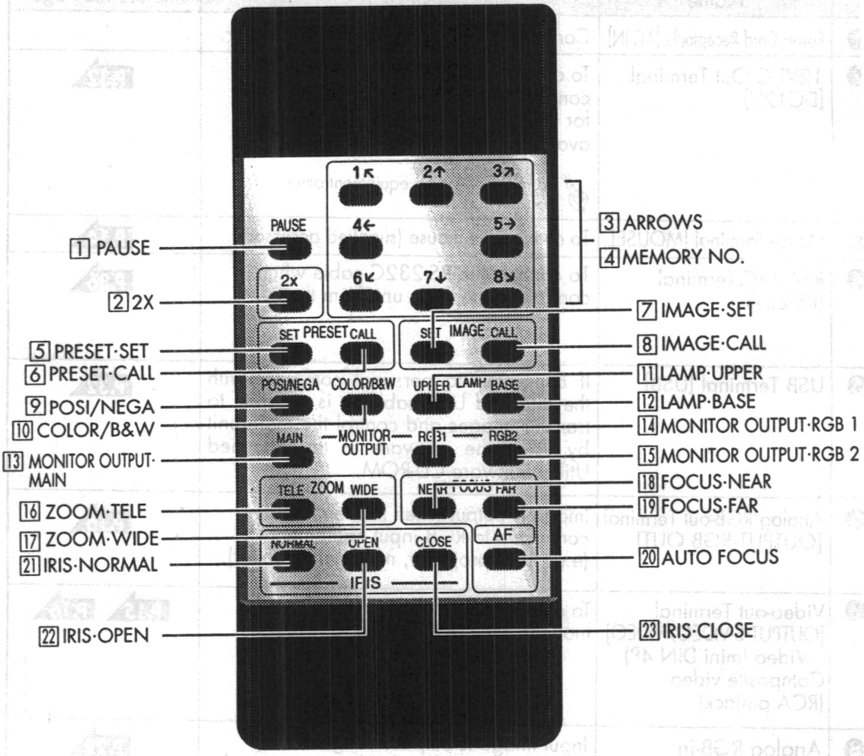
Rear Panel


① Power Cord Receptacle [AC IN]
② 12VDC Out Terminal [DC12V]
④ RS-232C Terminal [RS-232C]
⑥ Analog RGB-out Terminal [OUTPUT·RGB OUT]
⑧ Analog RGB-in Terminal 1 [INPUT·RGB1]
AC IN
DC12V
RS-232C
MOUSE
USB
VIDEO
S-VIDEO
OUTPUT
RGB2
INPUT
0
1
AB
③ Mouse Terminal [MOUSE]
⑤ USB Terminal [USB]
⑦ Vide-out Terminal [OUTPUT·S-VIDEO /VIDEO] S-Video (mini DIN 4P), Composite video (RCA pinjack)
⑨ Analog RGB-in Terminal 2 [INPUT·RGB2]
⑩ DIP Switch

	Name	Function	Reference Page
①	Power Cord Receptacle [AC IN]	Connected to the power cord connector.	
②	12VDC Out Terminal [DC12V]	To output DC12V and the image. This connecting terminal specially designed for the LCD monitor (LM-5011N) available separately. Do not connect the equipment other than LM-5011N.	P.32
③	Mouse Terminal [MOUSE]	To connect the mouse (supplied accessory).	P.14
④	RS-232C Terminal [RS-232C]	To connect the RS-232C cable when controlling the main unit from the PC.	P.36
⑤	USB Terminal [USB]	If connected to personal computer with the attached USB cable, it is possible to transfer images and control the main unit by using the software in the attached Utility Software CD-ROM.	P.32
⑥	Analog RGB-out Terminal [OUTPUT·RGB OUT]	Image is output when this terminal is connected to RGB input equipment (e.g., LCD projector, multi-sync monitor).	P.16
⑦	Video-out Terminal [OUTPUT·S-VIDEO/VIDEO] S-Video (mini DIN 4P) Composite video (RCA pinjack)	To output images to the NTSC/PAL monitor, such as TV monitor.	P.15 P.16
⑧	Analog RGB-in Terminal1 [INPUT·RGB1]	Input image is output through analog RGB-out terminal and video-out terminal when the input selection is set at RGB1.	P.22

<table>
<tr><th></th><th>Name</th><th>Function</th><th>Reference Page</th></tr>
<tr><td>❾</td><td>Analog RGB-in Terminal 2 [INPUT·RGB2]</td><td>Input image is output through analog RGB-out terminal and video-out terminal when the input selection is set at RGB2.</td><td>P.22</td></tr>
<tr><td>❿</td><td>DIP Switch</td><td>The functions can be switched as follows:
◊[A] key: To switch the video output type.
◊[B] key: To switch the screen size of video output.
Key alignment and functions:
<table>
<tr><th></th><th>[A] key</th><th>[B] key</th></tr>
<tr><td>0</td><td>NTSC</td><td>Over scan</td></tr>
<tr><td>1</td><td>PAL</td><td>Under scan</td></tr>
</table>
Before switching the DIP switch key, be sure to turn OFF the power supply to this product.</td><td>P.15</td></tr>
</table>

Wireless Remote Control


1↖
2↑
3↗
PAUSE
4←
5→
2x
6↙
7↓
8↘
SET PRESET CALL
SET IMAGE CALL
POSI/NEGA
COLOR/B&W
UPPER LAMP BASE
MAIN
MONITOR OUTPUT
RGB1
RGB2
TELE ZOOM WIDE
NEAR FOCUS FAR
AF
NORMAL
OPEN
CLOSE
IRIS
[1] PAUSE
[2] 2X
[3] ARROWS
[4] MEMORY NO.
[5] PRESET·SET
[6] PRESET·CALL
[7] IMAGE·SET
[8] IMAGE·CALL
[9] POSI/NEGA
[10] COLOR/B&W
[11] LAMP·UPPER
[12] LAMP·BASE
[13] MONITOR OUTPUT·MAIN
[14] MONITOR OUTPUT·RGB 1
[15] MONITOR OUTPUT·RGB 2
[16] ZOOM·TELE
[17] ZOOM·WIDE
[18] FOCUS·NEAR
[19] FOCUS·FAR
[20] AUTO FOCUS
[21] IRIS·NORMAL
[22] IRIS·OPEN
[23] IRIS·CLOSE

	Button Name		Function	Reference Page
1	PAUSE		To pause the image.	P.26
2	ELECTRONIC ENLARGEMENT	2X	To double the image size.	P.24
3		ARROWS	To scroll the electronic enlargement screen. When the video pointer is displayed, this can also be used to move the video pointer.	
4	MEMORY NO.		The memory No. Used with 5 to 8.	
5	STATUS	PRESET·SET	To store the operating condition of the equipment. Used with the memory No.	P.30
6		PRESET·CALL	To call the stored operating condition then. Used with the memory No.	
7	IMAGE	IMAGE·SET	To store images in the main unit memory. Used with the memory No.	P.31
8		IMAGE·CALL	To call the image stored by [IMAGE·SET] button. Used with the memory No.	
9	POSI/NEGA		To switch POSI/NEGA.	P.25
10	COLOR/B&W		To switch COLOR/B&W.	P.24
11	LAMP	UPPER	Not available.	P.20
12		BASE	To turn ON/OFF the base lamp.	
13	MONITOR OUTPUT	MAIN	To change the output line.	P.22
14		RGB1		
15		RGB2		
16	ZOOM	TELE	To zoom in.	P.21
17		WIDE	To zoom out.	
18	FOCUS	NEAR	To move the focus near.	P.30
19		FAR	To move the focus far.	
20		AUTO FOCUS	To focus automatically.	P.29
21	IRIS	NORMAL	To reset the AUTO iris to the initial value.	P.28
22		OPEN	To open the AUTO/MANUAL iris.	
23		CLOSE	To close the AUTO/MANUAL iris.	

1
2
3
4
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10
11

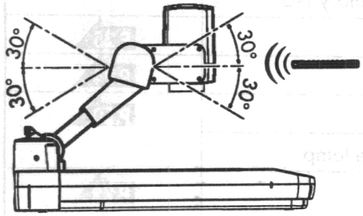
2 WIRELESS REMOTE CONTROL

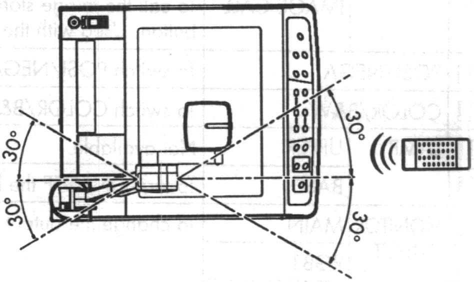
Receivable Range

Point the infrared emitting part of the wireless remote control at the infrared sensor of this product, and press the button for desired function. The receivable range may be narrowed when the product is placed under sunlight, near an inverter fluorescent lamp or in any other unfavorable surroundings. Depending on the conditions of fluorescent lamps, etc. the sensor may fail to receive the infrared light. In such a case, relocate this product, or take other countermeasures.

- Receivable range

Distance : Approx. 7 m (23 ft.) or less from the light receiving area to the front of the wireless remote control
Angle : Approx. 30° degrees or less from the light receiving area to the front of the wireless remote control rightward, leftward, upward and downward, respectively





Preparation

Remove the battery case cover by pressing downward on the [↓OPEN] mark part in the direction as indicated by the arrow.
Install 2 PCS. of batteries (type R03, AAA) into the case in the direction as indicated there.

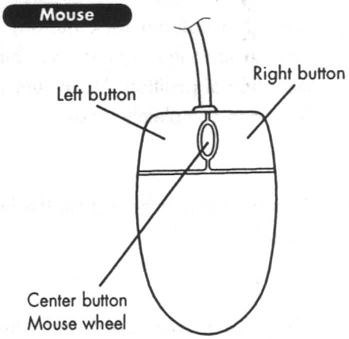
Install the batteries with the right polarity.

Change the batteries once a year.

The batteries supplied with this product are only for use in initially confirming the operation of this product. It is not guaranteed that these batteries can work effectively for the indicated period.

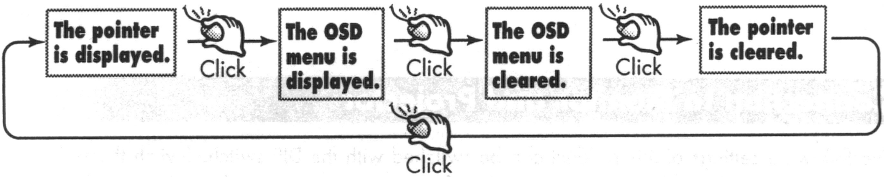
3 MOUSE

Mouse Operation


Mouse
Right button
Left button
Center button
Mouse wheel

Connect the mouse to the mouse terminal [MOUSE] on the rear panel.

- Click the left button
  To operate the OSD menu.
  When the image isn't in electronic enlargement or isn't rotated to 90° or 270°, it is possible to display or clear the pointer and OSD menu by clicking.
- Drag with the left button down
  To scroll the screen when the image is in electronic enlargement or is rotated to 90° or 270°.
- Click the mouse wheel
  To display or clear the pointer and OSD menu alternately by clicking.


The pointer is displayed.
Click
The OSD menu is displayed.
Click
The OSD menu is cleared.
Click
The pointer is cleared.
Click

- Roll the mouse wheel
  To scroll the screen up/down when the image is in electronic enlargement or is rotated to 90° or 270°.
- Click the right button
  When this button is clicked when the pointer is in display, the electronic image enlargement function is activated with the position indicated by the pointer as a center. When the pointer is not displayed, electronically enlarge the center of the image is electronically enlarged.

The screen can be scrolled by moving the mouse only when the image is rotated to 90° or 270°.

Click the OSD menu, then the menu functions are given priority.

When using the mouse, connect the mouse before turning ON the power supply to this product.

Use the attached mouse. If a mouse on the market is used, the normal operation cannot be guaranteed.

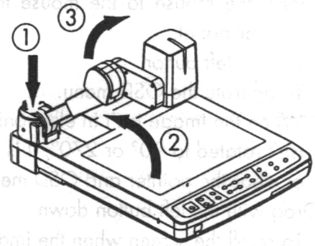
The OSD display is assumed to be used for large projection sizes with a projector or the like. Therefore, the display on a hand monitor or a TV may be hard to see.

Reference Page
- Electronic enlargement P.24
- OSD P.33

4 SETTING UP AND CONNECTION

Setting Up

(1) Press the column lock button, and raise the column until the column lock button returns to the original position. Make sure that the column has been completely locked.



(2) Turn the camera head until the lens faces to the stage.

(3) Plug the power cord into the power cord receptacle of this product and the AC outlet.

Connection to Monitor and Projector

The following settings of this product can be switched with the DIP switch. Switch the settings according to the connection environment. The factory settings are as shown in the following table:

Key	Function	Initial setting	
		Key selection	Content
A	To switch the Video output type	0	NTSC
B	To switch the screen size of Video output	0	Over scan

Be sure to turn OFF the power supply to all equipment before making any connections to protect this product and all the connected equipment.

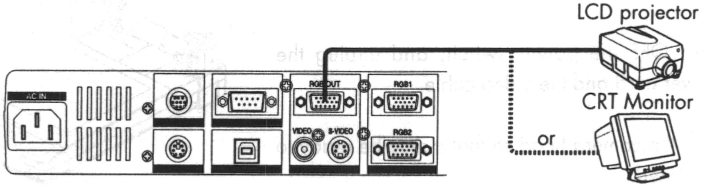
When switching the DIP switch key, be sure to turn OFF the power supply to this product beforehand.

■ Connection to the analog RGB-out terminal

Connect the analog RGB-out terminal [OUTPUT·RGBOUT] to the equipment having an analog RGB-in terminal with the analog RGB cable (attached) or a connection cable available on the market.

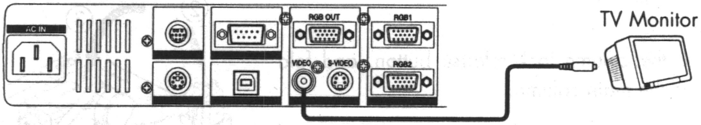
At this time, the position of the display may be deviated from the center. If deviated, manually adjust the horizontal and vertical positions on the connected equipment side.

Also, vertical stripes may appear on the screen of the LCD projector. That can be alleviated by manually adjusting the dot clock frequency on the projector side.


LCD projector
CRT Monitor
or
AC IN
RGB OUT
RGB1
VIDEO
S-VIDEO
RGB2

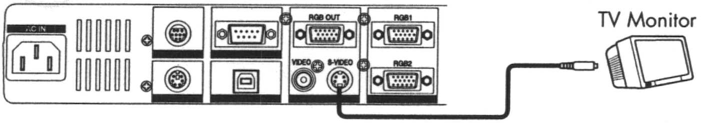
■ Connection to the composite video-out terminal

Use the composite video-out terminal [VIDEO](RCA pin) and the video cable with RCA pin plug as attached or available on market.


TV Monitor
AC IN
RGB OUT
RGB1
VIDEO
S-VIDEO
RGB2

■ Connection to the S video-out terminal

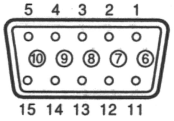
Use the S video terminal [S-VIDEO](mini-DIN4P) and the S-video cable as attached or available on market.


TV Monitor
AC IN
RGB OUT
RGB1
VIDEO
S-VIDEO
RGB2

Hold the cable plug when connecting or disconnecting the cables.

Analog RGB Signal

■ Signal allocation


5 4 3 2 1
⑩ ⑨ ⑧ ⑦ ⑥
15 14 13 12 11

DSUB 15P shrink terminal (Female)

Video signal : Analog 0.7V(p-p) 75Ω terminated

Horizontal synchronized signal : TTL level (positive/negative polarity)

Vertical synchronized signal : TTL level (positive/negative polarity)

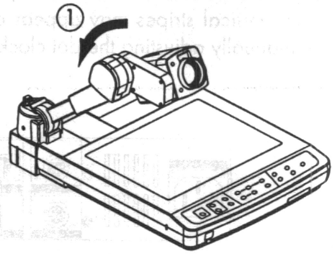
■ Pin assignment

Pin No.	Name	Pin No.	Name	Pin No.	Name
1	Video signal (Red)	6	GND (Red)	11	GND
2	Video signal (Green)	7	GND (Green)	12	N.C
3	Video signal (Blue)	8	GND (Blue)	13	Horizontal synchronized signal
4	N.C	9	N.C	14	Vertical synchronized signal
5	GND	10	GND	15	N.C

5 STORING

Storing

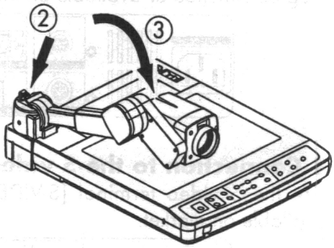
When the LCD monitor is mounted, this product cannot be stored.
Remove the LCD monitor, and then store this product.



(1) **Turn OFF the power switch, and unplug the power cord and the video cable.**

(2) **Turn the camera head so that it may be ready to be stored.**

The illustration shows the right storage position of the camera head. Never apply excessive force to the column.



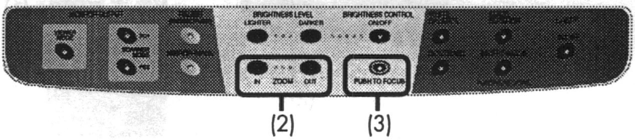
(3) **Press the column lock release button, and fold down the main column.**

The illustration shows the right storage position of the column. Never apply excessive force to the column.

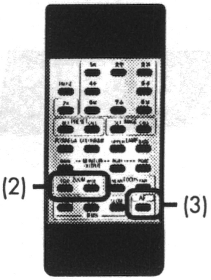
6 OPERATION PROCEDURES

Simple steps for Presenting Printed Material

Front operation panel

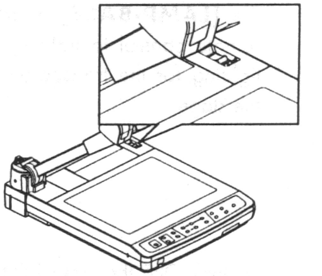

IN
ZOOM
OUT
PUSH TO FOCUS
(2)
(3)

Wireless remote control



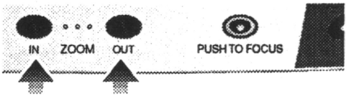
(1) Turn ON the power switch.

- Before turning ON the power switch, connection to the monitor should have been completed.
- The indicator lamp (green LED) on the front panel shows the initial status of each function.
- If the power switch is turned ON immediately after being turned OFF, this product may not operate. For restarting, turn OFF this product and wait several seconds then turn ON.

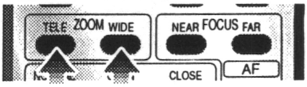


(2) Place the object on the stage. Adjust the image size according to the object size using the zoom buttons (**[IN]**/**[OUT]**) on the front operation panel or the zoom tele/wide buttons (**[ZOOM•TELE]**/**[ZOOM•WIDE]**) on the wireless remote control, while watching the image on the TV monitor.

Front operation panel

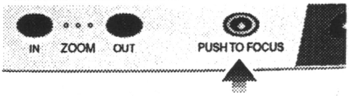

IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control

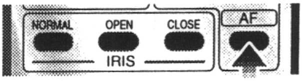

TELE
ZOOM
WIDE
NEAR
FOCUS
FAR
CLOSE
AF

(3) Press the **[PUSH TO FOCUS]** button on the front panel or auto focus button **[AF]** on the wireless remote control.

Front operation panel


IN
ZOOM
OUT
PUSH TO FOCUS

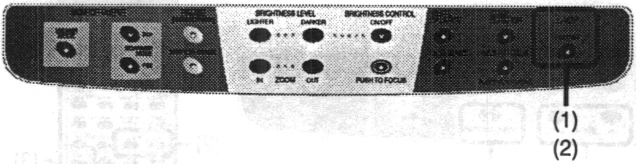
Wireless remote control


NORMAL
OPEN
CLOSE
IRIS
AF

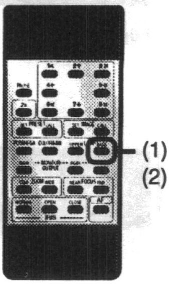
1
2
3
4
5
6
7
8
9
10
11

Steps for Showing Transparent Material

Front operation panel

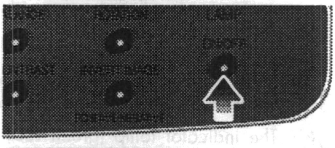

BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS
(1)
(2)

Wireless remote control

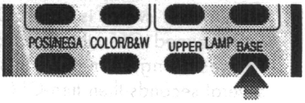


(1) Press the **[LAMP]** button on the front panel or the **[LAMP·BASE]** button on the wireless remote control to light up the base light (the lighting for the transparent documents) built in the stage.

Front operation panel



Wireless remote control

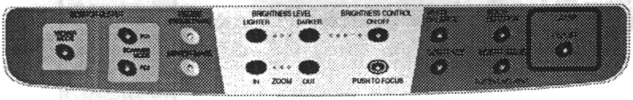

POSI/NEGA
COLOR/B&W
UPPER
LAMP
BASE

(2) To turn OFF the base light, press the **[LAMP]** button on the front panel or the **[LAMP·BASE]** button on the wireless remote control again.

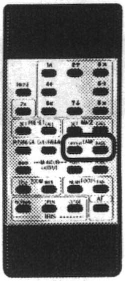
7 VARIOUS FUNCTIONS AND OPERATION

Lighting

Front operation panel

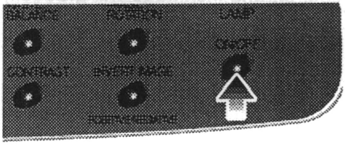

BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control

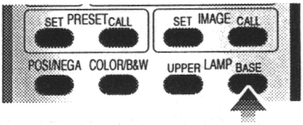


This product is equipped with base lamp for presenting transparent materials such as slides and negative films. The fluorescent lamp lights up in 1 to 3 seconds when either the **[LAMP]** button on the front operation panel or the **[LAMP•BASE]** button on the wireless remote controller is pressed.

Front operation panel

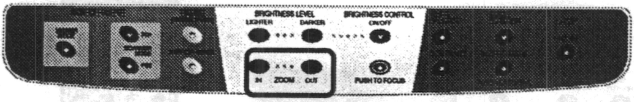

BALANCE
ROTATION
LAMP
ON/OFF
CONTRAST
INVERT IMAGE

Wireless remote control

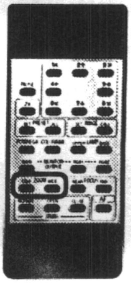

SET PRESET CALL
SET IMAGE CALL
POSI/NEGA
COLOR/B&W
UPPER LAMP BASE

Zoom

Front operation panel

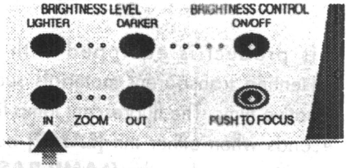

BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control

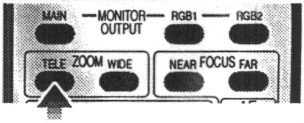


Press the **[IN]** button on the front operation panel or the **[ZOOM·TELE]** button on the wireless remote control, and the image will gradually be enlarged.

Front operation panel

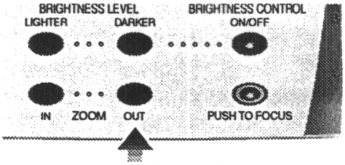

BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control

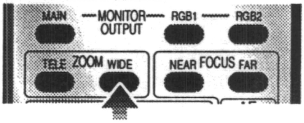

MAIN
—MONITOR— OUTPUT
RGB1
RGB2
TELE ZOOM WIDE
NEAR FOCUS FAR

Press the **[OUT]** button on the front operation panel or the **[ZOOM·WIDE]** button on the wireless remote control, and the image will gradually be reduced.

Front operation panel


BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

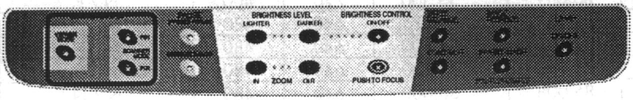
Wireless remote control


MAIN
—MONITOR— OUTPUT
RGB1
RGB2
TELE ZOOM WIDE
NEAR FOCUS FAR

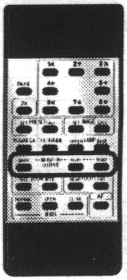
Also, by continuously pressing the zoom button, the speed of zooming operation becomes faster. (Double speed function)

Monitor Output Selection

Front operation panel


BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
PUSH TO FOCUS

Wireless remote control

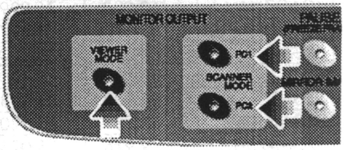


The respective images from two different sources connected to this product such as a PC and an Elmo Presenter "HV-110XG" can be alternately presented on a TV by selecting the source by pressing the desired Monitor Output selection buttons without changing the cable connections.

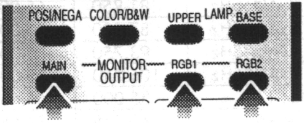
The image can be switched by pressing the Monitor Output selection button **[PC1]**, **[PC2]**, **[VIEWER MODE]** on the front operation panel or **[RGB1]**, **[RGB2]**, **[MAIN]** button on the wireless remote control.

The lighting of indicator lamp on the front panel indicates which input is now selected.

Front operation panel


MONITOR OUTPUT
VIEWER MODE
PC1
SCANNER MODE
PC2

Wireless remote control

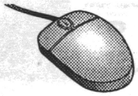

POSI/NEGA
COLOR/B&W
UPPER
LAMP
BASE
MAIN
MONITOR OUTPUT
RGB1
RGB2

■ External input image signal which can be output from video-out terminal

Signal	Frequency			Resolution (Number of lines)		Polarity of the synchronized signal (P: Positive, N: Negative)
	Horizontal	Vertical	Pixel clock			
Mode name	kHz	Hz	MHz	Horizontal	Vertical	HV
VGA1	37.861	84.889	31.500	640	350	P / N
VGA2	37.861	85.080	31.500	640	400	N / P
VGA3	37.972	85.039	35.500	720	400	N / P
VGA@60Hz	31.469	59.941	25.175	640	480	N / N
VGA@72Hz	37.861	72.809	31.500	640	480	N / N
VGA@75Hz	37.500	75.000	31.500	640	480	N / N
VGA@85Hz	43.269	85.008	36.000	640	480	N / N
SVGA@56Hz	35.156	56.250	36.000	800	600	P / P
SVGA@60Hz	37.879	60.317	40.000	800	600	P / P
SVGA@72Hz	48.077	72.188	50.000	800	600	P / P
SVGA@75Hz	46.875	75.000	49.500	800	600	P / P
SVGA@85Hz	53.674	85.061	56.250	800	600	P / P
XGA@60Hz	48.363	60.004	65.000	1024	768	N / N
XGA@70Hz	56.476	70.069	75.000	1024	768	N / N
XGA@75Hz	60.023	75.029	78.750	1024	768	P / P
XGA@85Hz	68.677	84.997	94.500	1024	768	P / P
SXGA1	67.500	75.000	108.000	1152	864	P / P
SXGA2	60.000	60.000	108.000	1280	960	P / P
SXGA3	85.938	85.003	148.500	1280	960	P / P
SXGA@60Hz	63.981	60.020	108.000	1280	1024	P / P
SXGA@75Hz	79.976	75.025	135.000	1280	1024	P / P
SXGA@85Hz	91.146	85.024	157.500	1280	1024	P / P
UXGA@60Hz	75.000	60.000	162.000	1600	1200	P / P
UXGA@65Hz	81.250	65.000	175.500	1600	1200	P / P
UXGA@70Hz	87.500	70.000	189.000	1600	1200	P / P
UXGA@75Hz	93.750	75.000	202.500	1600	1200	P / P
UXGA@85Hz	106.250	85.000	229.500	1600	1200	P / P
Mac 13	35.000	66.667	30.240	640	480	N / N
Mac 16	49.725	74.550	57.283	832	624	N / N
Mac 19	60.241	74.927	80.000	1024	768	N / N
Mac 21	68.681	75.062	100.000	1152	870	N / N
PC98	24.825	56.420	21.052	640	400	N / N

Electronic Enlargement

To double the image, press the **[2x]** button on the wireless remote control or click the Right button of the mouse.
Enlarged screen can be scrolled by operating the arrow button on the wireless remote control or by operating the mouse.



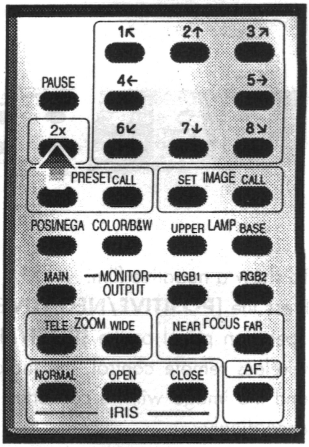
• The mouse can be operated as follows:

- Left button........ To scroll the image according to the dragging of the mouse while holding down the left button.
- Mouse wheel ... To scroll up/down the enlarged screen.
- Right button ..... To turn ON/OFF the double enlargement. When any image is enlarged electronically, the pointer becomes the mark ✕.

When the electronic enlargement is tried while the mouse pointer is in display, since the left button of the mouse is limited to the scroll function, the mouse pointer and the OSD menu cannot be turned ON/OFF.
To turn ON/OFF the mouse pointer and the OSD menu, turn OFF the electronic enlargement.

PRESET MOVE and initialization performed by OSD while double enlargement is ON turns off double enlargement.

Wireless remote control


1↖
2↑
3↗
PAUSE
4←
5→
2x
6↙
7↓
8↘
PRESET CALL
SET IMAGE CALL
POSI/NEGA
COLOR/B&W
UPPER LAMP BASE
MAIN
MONITOR OUTPUT
RGB1
RGB2
TELE ZOOM WIDE
NEAR FOCUS FAR
NORMAL
OPEN
CLOSE
IRIS
AF

Reference Page

•Mouse..... P.14

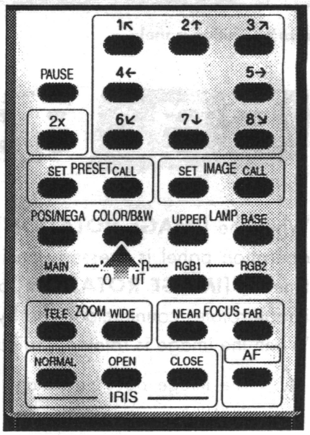
•OSD........ P.33

Color / B&W Selection

To present the B&W (Black&White) material such as documents. Sharper image with no color blur on the monitor can be produced.
If the **[COLOR/B&W]** button on the wireless remote control is pressed, images are switched.

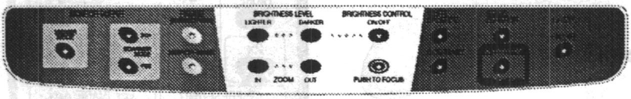
The default is black and white mode.

Wireless remote control

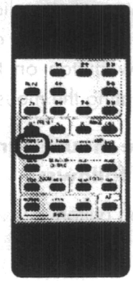

1↖
2↑
3↗
PAUSE
4←
5→
2x
6↙
7↓
8↘
SET PRESET CALL
SET IMAGE CALL
POSI/NEGA
COLOR/B&W
UPPER LAMP BASE
MAIN
OUTPUT
RGB1
RGB2
TELE ZOOM WIDE
NEAR FOCUS FAR
NORMAL
OPEN
CLOSE
IRIS
AF

Posi / Nega Conversion

Front operation panel


BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control



To show a negative film.

Press the **[POSITIVE/NEGATIVE]** button on the front operation panel or the **[POSI/NEGA]** button on the wireless remote control, the indicator lamp lights up and the image will be converted to the NEGA mode accordingly.

When the **[POSITIVE/NEGATIVE]** or **[POSI/NEGA]** button is pressed again, the indicator lamp goes out and the POSI mode is resumed.

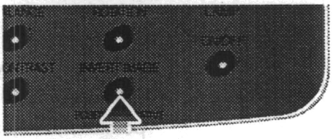
In the condition of NEGA, the followings are restricted.

- When contrast ON: Gamma adjustment is not available.
- Only When Gamma setting γ = 07: Contrast can be turned ON.

NEGA setting at the factory

- White balance: One-push mode
- Gamma: γ = 07 (0.3)
- Contrast: ON

Front operation panel



Wireless remote control

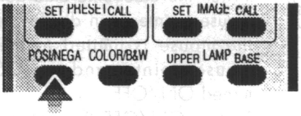
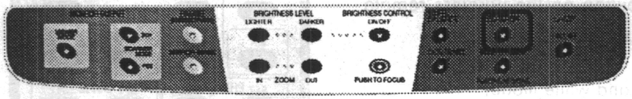

SET PRESET CALL
SET IMAGE CALL
POSI/NEGA
COLOR/B&W
UPPER LAMP BASE

Image Rotation

Front operation panel

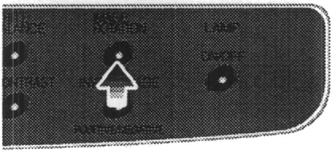

BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

When the **[IMAGE ROTATION]** button on the front operation panel is pressed, the image rotates. Every time the **[IMAGE ROTATION]** button is pressed, the image rotates counterclockwise by 90°.

When the image is rotated, indicator lamp goes ON.

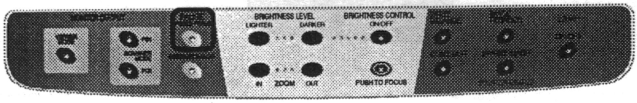
The image does not rotate when Pause mode is working.

Front operation panel

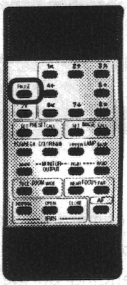


Pause

Front operation panel

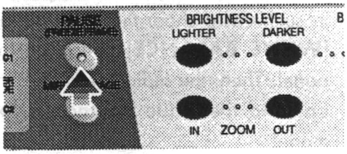

BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control

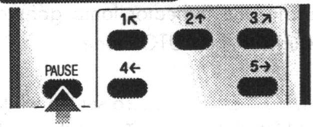


When the **[PAUSE (FREEZE FRAME)]** button on the front operation panel or the **[PAUSE]** button on the wireless remote control is pressed, the image from the main camera pause.
When the **[PAUSE (FREEZE FRAME)]** or **[PAUSE]** button is pressed again, the pause mode is canceled.

Front operation panel

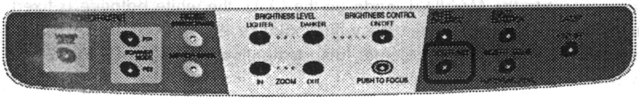

PAUSE
(FREEZE FRAME)
BRIGHTNESS LEVEL
LIGHTER
DARKER
IN
ZOOM
OUT

Wireless remote control


1↖
2↑
3↗
PAUSE
4←
5→

Contrast

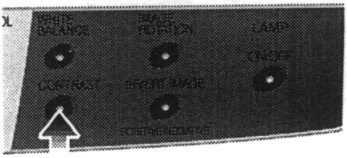
Front operation panel


BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

To present the material with a little half tone such as documents.
Images with sharp characters and lines contrasty with background can be obtained.
When the **[CONTRAST]** button on the front operation panel is pressed, the indicator lamp lights up, and the image becomes contrasty.
When the **[CONTRAST]** button is pressed again, the indicator lamp goes out, and the image is reset to the normal condition.

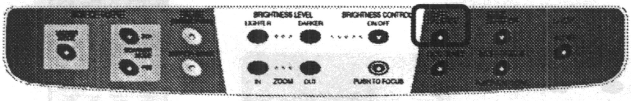
In the condition of NEGA, contrast is turned ON only when the gamma setting is $\gamma = 07$ (0.3).

Front operation panel

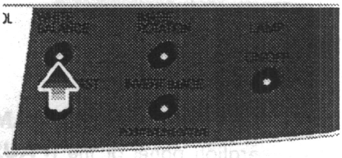

WHITE BALANCE
IMAGE ROTATION
LAMP
ON/OFF
CONTRAST
INVERT IMAGE

White Balance

Front operation panel



Front operation panel



The camera of this product automatically adjusts the shooting color balance (AUTO mode). However, depending on the color arrangement of document or the like, this color balance may be lost.

In such case, shoot the stage surface, and press the **[WHITE BALANCE]** button on the front operation panel. Then, the indicator lamp blinks and then lights up, and the white balance is fixed. (ONE-PUSH mode)

When the **[WHITE BALANCE]** button is pressed again, the indicator lamp goes out, and the mode returns to the AUTO mode.

AUTO	To set the white balance in the auto follow mode (initial setting).
ONE-PUSH	To set the push-set white balance. By pressing the **[WHITE BALANCE]** button, the white balance for the then color temperature is fixed.

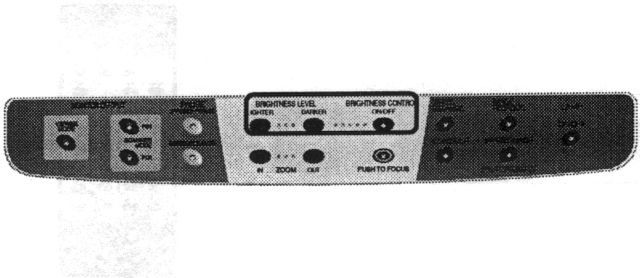
The automatically followed color temperature ranges from approx. 3000k to 8000k.

When the white balance is set to the MANUAL mode on the OSD, the white balance is fixed, and the indicator lamp remains lighting. When the white balance button [WHITE BALANCE] on the operation panel is pressed while the indicator lamp is lighting, the indicator lamp goes out, and the mode is switched to the AUTO mode.

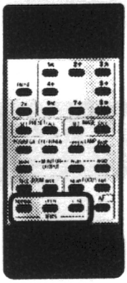
Reference Page • OSD....... P.33

Iris

Front operation panel


BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control



To adjust the brightness of image by adjusting the diaphragm.

- Auto iris .... Adjusts brightness automatically.
- Manual iris .... Adjusts brightness manually.

■ Brightness control OFF

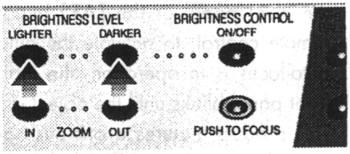
To adjust the level of brightness automatically according to the object.

Press the brightness level button **[LIGHTER]** on the front panel or the iris button **[IRIS•OPEN]** on the wireless remote control to open the iris.

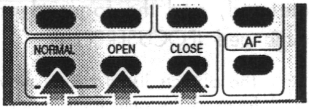
Press the brightness level button **[DARKER]** on the front panel or the iris button **[IRIS•CLOSE]** on the wireless remote control to close the iris.

Press the **[IRIS•NORMAL]** button on the wireless remote control,to change setting back to the defaults.

Front operation panel


BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control


NORMAL
OPEN
CLOSE
AF

■ Brightness control ON

To lock the image to a certain brightness. Press the brightness control button **[ON/OFF]** on the front panel, then the indicator lamp goes ON to enable the adjustment by manual iris.

Press the brightness level button **[LIGHTER]** on the front panel or the iris button **[IRIS•OPEN]** on the wireless remote control,to open the iris.

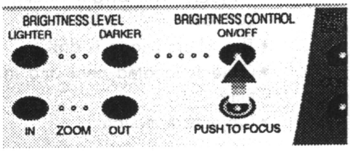
Press the brightness level button **[DARKER]** or the iris button **[IRIS•CLOSE]** on the wireless remote control to close iris.

Press the brightness control button **[ON/OFF]**, again and the indicator lamp goes OFF, to return to the auto iris.

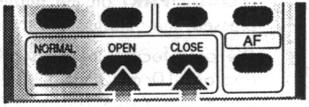
The default setting is Brightness control ON.

In time of manual iris, the iris is locked, and does not follow the brightness change of the object.

Front operation panel

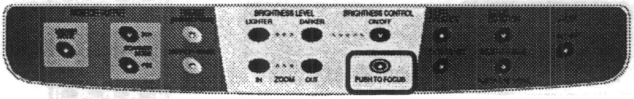

BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

Wireless remote control

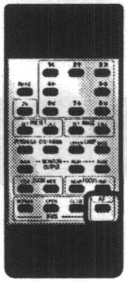

NORMAL
OPEN
CLOSE
AF

Focus

Front operation panel


BRIGHTNESS LEVEL
LIGHTER
DARKER
BRIGHTNESS CONTROL
ON/OFF
IN
ZOOM
OUT
PUSH TO FOCUS

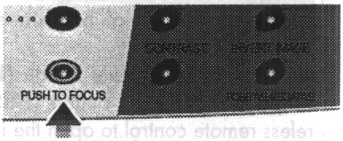
Wireless remote control



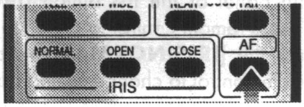
Adjust the focus of the object.

■ Auto Focus

Front operation panel


CONTRAST
INVERT IMAGE
PUSH TO FOCUS

Wireless remote control


NORMAL
OPEN
CLOSE
AF
IRIS

Press the auto focus button **[PUSH TO FOCUS]** on the front panel or the **[AF]** button on the wireless remote control, to activate the auto focus. While the auto-focus is in operation, the indicator lamp on the front panel blinks until the object is brought into focus. This product features a one-push auto focus function. Once focusing is completed, the auto focus function is released, and the focused position maintains unchanged (FOCUSFREE).

The objects listed below may not be brought into focus in the auto focus mode. In these cases, use the manual focus mode.

- Objects bearing little contrast
- Objects with fine repeated patterns, such as lateral stripes and cross stripes
- Objects glittering or reflecting strong light
- Objects with bright background, or excessive contrast
- The whole image is dark.
- Objects located near and far away at the same time
- Objects in motion

If the manual focus button **[FOCUS·NEAR]** or **[FOCUS·FAR]** on the wireless remote control is pressed, the auto focus will be canceled.

The auto focus function works up to a height of approx. 10cm (3.9 in) above the stage surface when the zoom button **[TELE]** is set to the maximum.

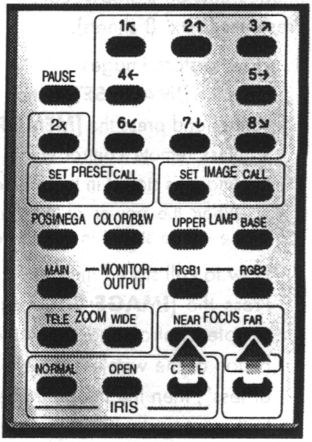
■ Powered Manual Focus

To focus on specific part of the material, such as 3-D material.

Press the focus button **[FOCUS NEAR]** or **[FOCUS FAR]** on the wireless remote control.

The powered manual focus function works up to a height of approx. 10cm (3.9 in) above the stage surface when the zoom button **[TELE]** is set to the maximum.

Wireless remote control


1↖
2↑
3↗
PAUSE
4←
5→
2x
6↙
7↓
8↘
SET PRESET CALL
SET IMAGE CALL
POSI/NEGA
COLOR/B&W
UPPER LAMP BASE
MAIN
MONITOR OUTPUT
RGB1
RGB2
TELE ZOOM WIDE
NEAR FOCUS FAR
NORMAL
OPEN
IRIS

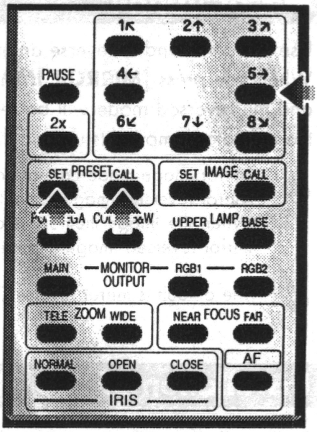
Preset Operation

Operation status of this product can be stored / read out in the memory (max. 8 states can be stored). Operation states that can be stored are as shown below.

- Present zoom angle of view
- The iris state of Auto/Manual selection and its status.
- White balance status
- ON/OFF of aperture
- Status of gamma
- Lighting status
- Status of color/B&W switch
- Status of mouse pointer ON/OFF, color and shape
- Status of image rotation
- ON/OFF of contrast mode
- Status of POSI/NEGA conversion
- ON/OFF of mirror image mode

1. How to store
   Press the **[PRESET·SET]** button on the wireless remote control and press the **[MEMORY NO.]** button of the wireless remote control within "4 sec or less", then the current status of this product is saved in the pressed number memory.
2. How to read out operation status
   Press the **[PRESET·CALL]** button on the wireless remote control and press the **[MEMORY NO.]** button of the wireless remote control within "4 sec or less", then this product is set to the memorized status correspond to the number.

Wireless remote control


1↖
2↑
3↗
PAUSE
4←
5→
2x
6↙
7↓
8↘
SET PRESET CALL
SET IMAGE CALL
UPPER LAMP BASE
MAIN
MONITOR OUTPUT
RGB1
RGB2
TELE ZOOM WIDE
NEAR FOCUS FAR
NORMAL
OPEN
CLOSE
AF
IRIS

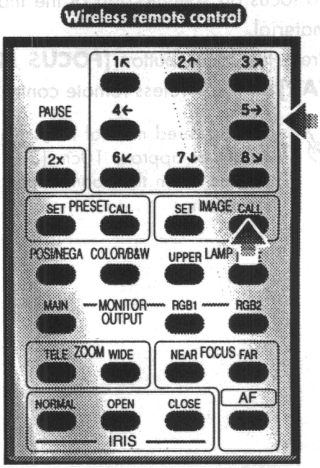
The preset (stored) status is maintained even when the power is turned OFF.

Image Memory

Images can be stored / called in the memory of this Presenter (max. 8 sheets).

1. How to store images
   Press the **[IMAGE·SET]** button on the wireless remote control and press the **[MEMORY NO.]** button of the wireless remote control within "4 sec or less", then the image is stored in the pressed number.
   When the power of the Presenter is turned OFF, the image stored in the memory is deleted.
2. How to call stored images
   Press the **[IMAGE·CALL]** button on the wireless remote control and press the **[MEMORY NO.]** button of the wireless remote control within "4 sec or less", then the image in the memory correspond to the pressed number is called.

If the **[MAIN]** button in the input selection area is pressed, the camera captured image is displayed again.


Wireless remote control
1↖
2↑
3↗
PAUSE
4←
5→
2x
6↙
7↓
8↘
SET PRESET CALL
SET IMAGE CALL
POSI/NEGA
COLOR/B&W
UPPER LAMP
MAIN
MONITOR OUTPUT
RGB1
RGB2
TELE ZOOM WIDE
NEAR FOCUS FAR
NORMAL
OPEN
CLOSE
IRIS
AF

Mirror Image

Use this command to reverse an image.
When you press **[MIRROR IMAGE]** button on the front panel, the indicator lamp goes out and the reversed mode will be released. When you press **[MIRROR IMAGE]** button again, the indicator lamp lights up and the image will be mirror reversed.

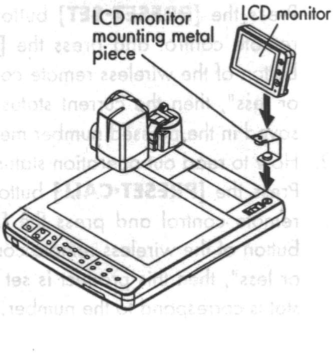
Mirror image mode cannot be activated/deactivated during electronic magnification.
Mirror reversed image cannot be stored as an image.
When the image memory is called, the mirror reversed state (on or off) will be reflected. The mirror reversed image imported by Image Mate will not reflect the reversed state.

The default is mirror reverse ON.

Installation of LCD Monitor

To install the LCD monitor (LM-5011N) available separately, the LCD monitor mounting metal piece (MS-201) available separately is required.

The LCD monitor (LM-5011N) and the LCD monitor bracket (MS-201) are available on option, and not attached to this Presenter (ST200-DFV).


LCD monitor mounting metal piece
LCD monitor

Connecting to the LCD Monitor

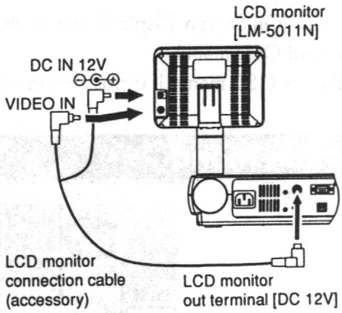
The LCD monitor (LM-5011N) can be connected by using the LCD monitor out terminal of the Presenter.

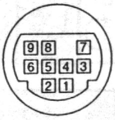
When connecting to the LCD monitor out terminal, confirm the right connection direction.

When using the LCD monitor connection cable, do not use the AC adapter or video cable attached to the LCD monitor (LM-5011N).

The LCD monitor (LM-5011N) and the LCD monitor bracket (MS-201) are available on option, and not attached to this Presenter (ST200-DFV).

Do not connect any other cable to this terminal. Negligence will result in the failure of the equipment.


LCD monitor
[LM-5011N]
DC IN 12V
VIDEO IN
LCD monitor
connection cable
(accessory)
LCD monitor
out terminal [DC 12V]



Mini DIN 9P
(Female)

1	VIDEO OUT
2	GND
3	NC
4	NC
5	NC
6	NC
7	+12V
8	GND
9	CONT.

"Utility Software CD-ROM"

The attached "Utility Software CD-ROM" contains the PC link software "Image Mate" and the TWAIN driver "ELMO TWAIN DS, "and can be operated as shown below.

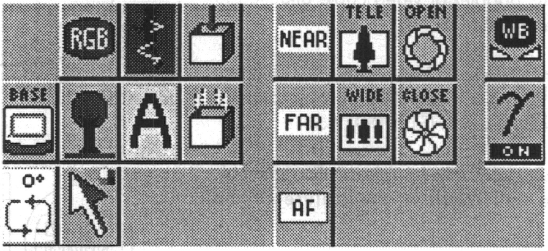
- To transfer graphic data to PC.
- To operate the Presenter by PC.

For details, see the installation manual for "Utility Software" and "manual.pdf" in the CD-ROM.

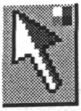
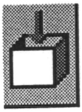
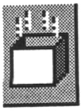
8 OSD (On-Screen Display)

OSD (On-Screen Display) means the operating menu displayed on the screen (hereinafter called OSD menu).
By this OSD menu, it is possible to operate this product by the mouse.

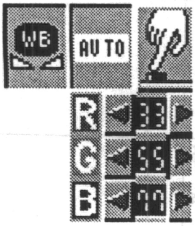
Main Menu



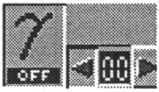
Icon	Name	Function	Reference Pages
BASE	Base lamp ON/OFF	To turn ON/OFF the base lamp. When power is turned ON, the previous saved setting remains.	P.20
RGB	Color/B&W selection	To switch the selection of the color/B&W of the screen. When power is turned ON, the previous saved setting remains.	P.24
	POSI/NEGA conversion	To switch the selection of the positive/negative of the screen. When power is turned ON, the previous saved setting remains.	P.25
0°	Image rotation	To rotate the image counterclockwise by 90°. When power is turned ON, the previous saved setting remains.	P.25
	Pause	To switch the selection of the static/moving image. When power is turned ON, the initial state is Animation.	P.26

Icon	Name	Function	Reference Pages
A	Aperture selection	To switch the modulation (edge emphasis) of the image. When power is turned ON, the previous saved setting remains.	
	Pointer	To change the color and shape of the pointer on the screen. Every time the left button of the mouse is clicked, the icon pointer is switched in order of "White arrow → Blue arrow → Yellow arrow → Red arrow → White line → Blue line → Yellow line → Red line".	
	Status saving	To save initial status when power is turned ON. Except the mouse pointer ON/OFF, the same contents as the items stored in the Preset/Move operation are saved.	P.30
	Initialization	To reset this product to the status of the factory settings.	
NEAR FAR	Focus Near/Far	To adjust the focus .	P.30
AF	Auto Focus	To focus automatically.	P.29
TELE WIDE	Zoom Tele/Wide	To adjust the zoom of the lens.	P.21
CLOSE OPEN	Iris Close/Open	To adjust the iris of the lens. Auto/Manual selection cannot be switched by the OSD.	P.28

○ White Balance Adjustment menu



○ Gamma menu



Icon	Name	Function	Reference Page
WB	White balance	To display the White Balance Adjustment menu. When the left button of the mouse is clicked again, the White Balance Adjustment menu is closed.	P.27
AUTO	Auto	To set the white balance in the AUTO FOLLOW mode. (initial setting)	
☝	One-push	To set the push-set white balance. When the left button of the mouse is clicked, the white balance for the then color temperature is fixed.	
R ◀ 33 ▶ G ◀ 55 ▶ B ◀ 99 ▶	Manual	To set the white balance with <RED>, <GREEN> and <BLUE>. Adjust the white balance by clicking the left button of the mouse on the direction buttons beside the volume bar. <RED>...To adjust the red component (01-99). <GREEN>...To adjust the green component (01-99). <BLUE>...To adjust the blue component (01-99).	
γ OFF ◀ 00 ▶	Gamma adjustment (0-7)	To switch the gamma setting value (00(1.0) / 01(0.9) / 02(0.8) / 03(0.7) / 04(0.6) / 05(0.5) / 06(0.4) / 07(0.3)). The factory setting is "04 (0.6)." Gamma cannot be adjusted when the contrast is ON in the negative status.	

9 RS-232C SPECIFICATIONS

This product can be controlled by a PC through the RS-232C terminal [RS-232C].

Setting Up

(1) Connect this product to a PC with an RS-232C cable.

When using an RS-232C cable available on the market, make sure of the cable connection shown below.

To protect this product and the PC, be sure to turn OFF all the power switches of all equipment before connecting.

(2) Start the PC, and set the communication mode of the RS-232C to the communication mode of this product.

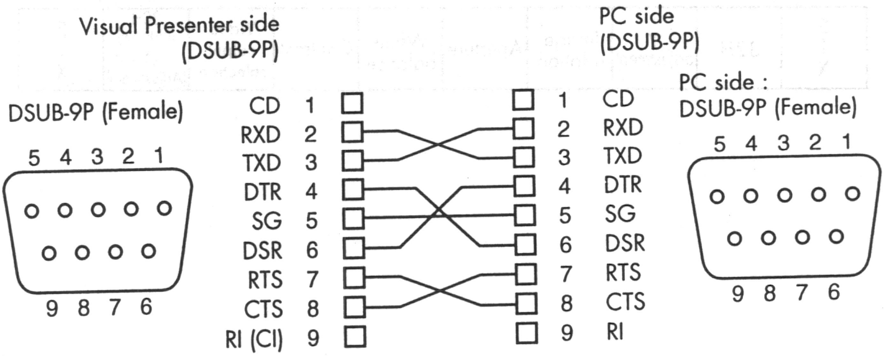
For the information how to set the communication mode of the RS-232C, refer to the instruction manual of the PC.

(3) Start the PC program to operate this product.

(4) RS-232C control starts.

For communication control, be sure to take the above steps for setting.

Cable Connection


Visual Presenter side
(DSUB-9P)
DSUB-9P (Female)
5 4 3 2 1
9 8 7 6
CD 1
RXD 2
TXD 3
DTR 4
SG 5
DSR 6
RTS 7
CTS 8
RI (CI) 9
PC side
(DSUB-9P)
1 CD
2 RXD
3 TXD
4 DTR
5 SG
6 DSR
7 RTS
8 CTS
9 RI
PC side :
DSUB-9P (Female)
5 4 3 2 1
9 8 7 6

Data Format Specifications

This command is executed in the form of 1 command/1 packet. The next command is not accepted until the previous processing is completed.

- The communication command always starts with STX (Start of Text) , and ends with ETX (End of Text) .
- If the communication format or command name is wrong, NAK (Negative Acknowledge) will be sent from this product as a result of failing to receive correctly.
- When the communication format is correctly received, this product sends ACK (Normal Acknowledge).

■ Transmission Command (PC → Visual Presenter)

Each operation command is executed in ASCII code, and transmitted in a set of 7 bytes as follows:

(PC)	STX	Command	Parameter	Data	ETX

(Visual Presenter) → ACK

■ Response data format (Visual Presenter → PC)

All response data is transmitted in ASCII code, and it covers parameter of the table of operation command.

- Status 0

STX	Lighting selection	RGB output selection	Posi / Nega	Color/ B&W	Pointer display	Electronic enlargement	Pause	Local lock out	ETX

- Status 2

STX	32H	γ adjustment	Image rotation	Aperture	White balance	Contrast	Video output selection	30H (Normal) 31H (Adjustment)	ETX

- Status 7

STX	Mirror image	Iris Mode	20H	20H	20H	20H	20H	20H	ETX

AUTO:31H
MANUAL:32H

- Status 8

STX	Image Memory8	Image Memory7	Image Memory6	Image Memory5	Image Memory4	Image Memory3	Image Memory2	Image Memory1	ETX

Byte not storing images is 30H.
Byte storing images is 31H.
Byte reading out images is 32H.

- ROM version

STX	V 56H	H 48H	I 49H	20H	**H	**H	ETX

ROM version 1 ROM version 2

Transmission Specifications

- Full duplex start-stop sync. mode
- Start bit : 1 bit
- Data bit : 8 bits
- Stop bit : 1 bit
- Parity bit : None
- X parameter : None
- Baud rate (Communication speed) : 9600bps

UART Communication Format

Commands, parameters and data are all transmitted in ASCII code.

Function	Command	Parameter	Data	Comments
Auto Focus	AF	0	■ ■	
Focus adjustment	FO	+ (NEAR) – (FAR) 0 (STOP)	■ ■	
Zoom adjustment	ZO	+ (TELE) – (WIDE) 0 (STOP)	■ ■	
Iris adjustment	IR	+ (OPEN) – (CLOSE) 0 (STOP) 1 (AUTO)	■ ■	
Lighting selection	PL	0 (OFF) 1 (BASE)	■ ■	
RGB output selection	AV	0 (MAIN) 1 (RGB1) 2 (RGB2)	■ ■	To change the RGB output line.
Video output selection	MO	0 (MAIN) 1 (RGB1) 2 (RGB2)	■ ■	To change the video output line.
Posi/Nega	NP	0 (POSI) 1 (NEGA)	■ ■	
Color/B&W	CB	0 (COLOR) 1 (B&W)	■ ■	
Pointer display	PO	0 (OFF) 1 (ON)	■ ■	
Enlarged image move	PM	0 (STOP) 1 (→) 2 (←) 3 (↑) 4 (↓) 5 (↗) 6 (↖) 7 (↘) 8 (↙)	■ ■	• When video pointer is ON.: The video pointer moves. • When the image enlargement is ON.: The enlarged image moves.
Electronic enlargement	MA	0 (OFF) 1 (ON)	■ ■	
Pause	FZ	0 (OFF) 1 (ON)	■ ■	
γ adjustment	GN	0 (γ = 1.0) 1 (γ = 0.9) 2 (γ = 0.8) 3 (γ = 0.7) 4 (γ = 0.6) 5 (γ = 0.5) 6 (γ = 0.4) 7 (γ = 0.3)	■ ■	

Function	Command	Parameter	Data	Comments
Image rotation	RO	0 (0°) 1 (90°) 2 (180°) 3 (270°)	■■	
Aperture selection	AP	0 (OFF) 1 (ON)	■■	
White balance selection	AW	0 (OFF) 1 (AUTO) 2 (ONE-PUSH)	■■	
Mirror image	CL	0 (OFF) 1 (ON)	■■	
Image Store	IS	1 2 3 4 5 6 7 8	■■	
Image Read	IC	1 2 3 4 5 6 7 8	■■	
Contrast	CT	0 (OFF) 1 (ON)	■■	
Local Lockout	LL	0 (OFF) 1 (ON)	■■	
Default	DF	0	■■	
Status request	QS	0 2 7 8	■■	
Rom version	QR	0	■■	
ACK check	SA	0 (OFF) 1 (ON)	■■	
CR addition	SC	0 (OFF) 1 (ON)	■■	

"■■" in the data column means that the SPACE [20H] should be transmitted twice.

Connection

If the RS-232C cable is not correctly connected between this product and the PC, no acknowledgement is transmitted. Connect the RS-232C cable correctly, and fix it firmly with the connector set screws before the operation.

10 TROUBLESHOOTING HINTS

Symptoms and Confirmation

Check the following items. If any abnormality is found, consult the seller or our branch/office near your place.

Symptom	Possible cause / countermeasure
No image on TV monitor	• Cable is not properly connected to the video-in terminal of monitor. • The power cord is disconnected from the wall AC outlet. • The plug is disconnected from the power cord receptacle of this product. • The power switch is not turned ON. • Zoom is set at TELE to display only white/black part of the material. • The power switch is turned ON immediately after it is turned OFF. In this case, this product may not start. Wait several seconds after turning OFF the power switch, and then turn ON the power switch.
Out of focus	• The object is too close to the lens. Check if it does not stand higher than 10cm (3.9 in.) above the stage surface. • Zoom is set at TELE after focusing at WIDE angle. Focus on the point of max. TELE. • In the auto-focus, focusing is difficult in some cases.
The lamp is not quickly turned ON.	• For protection purposes, the lamp is turned ON after preheating for 2 seconds. This is not a fault.
Video output image is disarrayed.	• Is the video output type set to the PAL? If this machine which is set to PAL is connected to the monitor specially designed for NTSC, the video image may not be output normally, in which the image is disarrayed, or becomes black and white. Switch the video output type by referring to P. 11 "Dip Switches."
Image is too dark.	• Is the iris adjusted to "Close" side? Adjust the iris to "Open" side.
The image is striped.	• This may be interference fringes between dots of printed matter and TV scanning lines or CCD pixels, which may be mitigated by changing the projection range. • When using LCD projector, vertical stripes may appear on the screen. This may be mitigated by manually adjusting the dot clock frequency on the projector side (refer to P. 16).
Brightness tone is out of order.	• This may be mitigated by switching gamma setting.

Replacement of Fluorescent Lamp

The lighting lamps (fluorescent lamps) are expendables. When any of them begins to flicker or be less bright, replace it.

For the replacement of the lamp, consult your dealer from whom you have purchased the product or an authorized ELMO service center.

11 SPECIFICATIONS

■ General

Item	Specifications		
Power source	AC100-240V 50Hz/60Hz		
Rated current	0.8A – 0.4A		
Outside dimensions (W × D × H)	400mm × 520mm × 198mm (15.7 × 20.5 × 7.8in.) (When folded) 400mm × 520mm × 408mm (15.7 × 20.5 × 16.1in.) (When set up)		
Weight	8.5kg (18.7 lbs.) (main body only)		
Input selection	Main body / External 2 systems		
Output terminal	RGB output	Mini DSUB 15P connector, female	×1
	Composite video output	RCA pin jack/75Ω unbalanced (NTSC/PAL)	×1
	S-video output	Mini DIN 4P connector/75Ω unbalanced (NTSC/PAL)	×1
Input terminal	RGB input	DSUB 15P connector, female	×2
Ext. control terminal	RS-232C	DSUB 9P connector, male	×1
	Mouse	Mini DIN 6P connector, female	×1
	USB	Type B receptacle	×1

■ Main Camera

Item	Specifications
Lens	f = 4.7 – 84.6mm (18x zoom), F2.8
Shooting speed	20 frames / sec
Shooting area (H × V)	42mm × 31.5mm (1.7 × 1.2 in.) max. 8mm × 6mm (0.3 × 0.2 in.) min.
Limit of focus adjustment	From the stage surface to 100mm (3.9 in) above the stage surface
Zooming	Powered(with double speed function)
Focusing	Auto / Manual
Iris	Auto (level adjustable) / Manual
Image pick-up element	1/3" CCD
Total picture elements	1077(H) × 788(V), 850,000 pixels
Effective picture element	1034(H) × 779(V)
Sync. system	Internal sync.
Resolution	Analog RGB output : Horizontal 600TV lines or more; Vertical 600TV lines or more Video output : Horizontal 400 TV lines or more
Analog RGB output	0.7V (P-P) 75Ω unbalanced, synchronization signal, positive polarity Signal frequency XGA: Horizontal frequency 48.363 kHz; Vertical frequency 60.004 Hz (1024 × 768 at 60 Hz); Compliant with VESA
Composite video output	Compliant with NTSC/PAL
S-video output	Compliant with NTSC/PAL
White balance	Full auto / One-push / Manual
Video output selection	Provided (NTSC / PAL)
Posi/Nega conversion	Provided
Color/B&W selection	Provided
Image rotation	Provided (0° / 90° / 180° / 270°)
Contrast	Provided
Gamma selection	Provided (1.0 / 0.9 / 0.8 / 0.7 / 0.6 / 0.5 / 0.4 / 0.3)
Aperture selection	Provided
Pause	Provided
Electronic image enlargement	Provided (double, can be scrolled)
Pointer	Controllable by mouse (color selectable)
Mirror Image	Provided

■ Lighting

Item	Specifications
Base	High frequency lighting mode, 3-wave-length type fluorescent lamp Area size: 296mm (W) × 216mm (H) (11.7 × 8.5 in.)

Supplied Accessories

Name	Quantity
Power cord (2.5m)	1
LCD monitor connection cable	1
Video cable (RCA pin connector) (3 m)	1
S-video cable (Mini DIN 4P connector) (2 m)	1
Infrared wireless remote controller (RCW-532)	1
Batteries (Type R03, AAA)	2
Analog RGB cable (DSUB 15P connector) (2 m)	1
Instruction manual for ST200-DFV	1
Scroll mouse	1
USB cable (1.8m)	1
Utility Software CD-ROM	1
Utility Software Installation Manual	1

Options

- 5" TFT LCD color monitor kit (LM-5011N)
- LCD monitor bracket (MS-201)

For the RCA pin, use a pin plug compliant with RC-6703.

The above specifications are subject to change without notice.

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